Patterns in Crime

Projects under this topic will seek to identify specific patterns in crime throughout the Denver area. Students will use the identified temporal and/or spatial patterns to suggest causes for location, increases/decreases, or spatial shifts in crime activity. Policy proposals crafted on the basis of these findings will help police respond effectively to catalyzing events and address causes of crime.

Guiding Principles

Examining existing data to determine policy proposals bears with it the responsibility to consider as many as parameters and approaches as possible to ensure objective and effective outcomes. In addition to evaluating results from available data, the project should also consider what data is missing that would change policy proposals. Whenever possible, project teams should justify their assumptions and methods by referencing reputable sources.

Expectations for all Topic 2 Projects:

a) Create one or more clearly stated research questions that address an aspect of crime with a definable impact on society. Generally, research questions are not “yes-no”, but rather hope to explore the impact of one or more factors on the problem at hand.

b) Examine and organize data from sources and evaluate how analyzing this data will contribute to understanding the local and broad effects crime has on the public or the police.

c) Propose one or more methods of investigation and conduct this data analysis, keeping a directed goal of having your analysis address your research questions.

d) Employ effective data visualization methods to share your findings with interested experts and non-experts.
e) Identify **potentially interested community members and other stakeholders**, beyond the law enforcement community, who may be interested in or impacted by the proposed study.

f) **Propose changes to current policy or development of new policy that could result from your analysis** and discuss the impacts of these policy outcomes within the city, state or country.

Larger and/or more advanced project teams may also choose to implement multiple or more advanced data analysis techniques, and may also choose to explore/implement some of the following:

a) **Seek additional data sources** and employ **interpolation methods** to solve information gaps discovered in initial data evaluation.

b) Incorporate **intermediate or advanced statistical techniques into the data pattern analysis**. The appropriateness of these techniques should be **clearly justified**.

c) Provide an **estimated budget**, along with a discussion of the **human, financial and technological costs** needed to satisfy the policy implementation resulting from the crime analysis.

d) Analyze both **positive and negative potential impacts of the study** on identified stakeholders and community members.

e) Develop a **communication or dissemination plan** to share the outcomes of the study with the identified stakeholders and communities of interest.

f) **Model potential changes in crime patterns** resulting from alternate (and possibly fabricated) scenarios and contrast results to those seen in the original data.

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**Example Areas of Study**

*(Participants are encouraged to explore any issue - these are only examples!)*

1) The effects of public gatherings (e.g. festivals) on the distribution or nature of crime.
2) The influence of weather or seasonal factors on crime patterns. (Do heat waves cause crime waves?).
3) Correlation (or lack thereof) of city zoning laws and crime incidences.
4) Does proximity to community centers, places of worship, parks or other public spaces impact the frequency or severity of crime?
5) Applications of machine learning or other “big data” techniques to identify patterns in criminal activity.
6) Qualitative or mixed-methods studies into sociological factors that impact the occurrence or distribution of crime.
## Data to Policy Project: Public Data for the Public Good
### Rubric for Patterns in Crime and Policing Practices

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Exceeds Expectations: 2</th>
<th>Meets Expectations: 1</th>
<th>Below Expectations: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of Problem and Research Question(s)</td>
<td>Identifies a narrow problem of need related to law enforcement in Denver and states (a) clear, approachable research question(s), identifying affected parties</td>
<td>Identifies a broad problem related to law enforcement in Denver and states at least one research question</td>
<td>Problem(s) and/or research question(s) absent</td>
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<tr>
<td>Relevancy of Data</td>
<td>Available data is directly relevant to the problem(s) or research question(s) identified, or employs multiple indirectly related data sets</td>
<td>Available data is indirectly relevant to the problem(s) or research question(s) identified</td>
<td>Data is not relevant to the problem(s) or research question(s) identified</td>
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<tr>
<td>Methods</td>
<td>Appropriate methods of research/analysis are stated, including data sources, software, or analytical techniques, etc.</td>
<td>Methods of research/analysis are stated</td>
<td>Methods of research/analysis are not stated</td>
</tr>
<tr>
<td>Analysis</td>
<td>Data analysis clearly uses methods to reach justifiable conclusions, building on what is established within the disciplinary literature, to address the problem(s) or research question(s) and utilizes an innovative technique or approach</td>
<td>Data analysis conducted is appropriate, as established within the disciplinary literature, to address the problem(s) or research question(s)</td>
<td>Data analysis conducted is not appropriate to address the problem(s) or research question(s)</td>
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<tr>
<td>Policy Impacts</td>
<td>Project clearly proposes a policy or practice that directly addresses the identified problem, identifies</td>
<td>Project proposes a policy or practice that directly addresses the identified problem</td>
<td>Project does not address the identified problem or gives an unrelated policy suggestion</td>
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<td>potential barriers, and engages stakeholders</td>
<td>Data Visualization</td>
<td>Communication: Poster</td>
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<td><strong>Data Visualization</strong></td>
<td>Visualization technique(s) for information are appropriate to the data and successfully communicate the findings of the project</td>
<td>Visualization of information is adequate to convey findings of the project</td>
<td>Poster effectively communicates ideas using clear language and layout</td>
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<tr>
<td><strong>Communication: Poster</strong></td>
<td>Poster effectively communicates ideas using clear language, layout, images and/or design</td>
<td>Poster effectively communicates ideas using clear language and layout</td>
<td></td>
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<tr>
<td><strong>Communication: Presentation</strong></td>
<td>Project presentation effectively communicates the ideas presented in the poster to a lay audience, and can answers questions</td>
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